Date: *July 9, 2018*

Subject: *Re: OU-5 Allied Paper, Inc./Portage Creek/Kalamazoo River Superfund Site, Area 6 Monitored Natural Recovery Preliminary Sampling Plan*

MDEQ has conducted a preliminary review of the *Area 6 Monitored Natural Recovery Preliminary Sampling Plan* (Sampling Plan) prepared by Wood Environment & Infrastructure Solutions, Inc., submitted on June 22, 2018, and is providing these overarching comments on the document and associated presentation titled *Area 6 Preliminary Sampling Plan: Collecting Lines of Evidence* (presented on June 12, 2018) in advance of its detailed Sampling Plan comments.

The efficacy of monitored natural recovery (MNR) as a remedial approach should include an evaluation of past and present empirical measurements and trends, and projections of these associated trends into the future. To develop such projections, all relevant and available historical data sets for a given area should be evaluated. The Allied Paper, Inc./Portage Creek/Kalamazoo River Superfund Site long-term monitoring program (LTM) program conducted by MDEQ and/or Georgia-Pacific's consultants since 1999 is one such data source, providing approximately 501 surface water and 99 fish tissue historical samples from Area 6. Furthermore, approximately 130 historical sediment samples exist from other Area 6 investigations based on MDEQ's database. These existing data sets provide some readily accessible baseline information against which future data can be compared. While the Sampling Plan acknowledges some of the historical trends observed, it does not specify how these trends will be evaluated against current or future data to determine the efficacy of MNR. Below are additional considerations MDEQ has identified for the development of an MNR sampling plan:

- Area 6 may include subareas with varying hydrodynamic, sediment transport, and/or biological characteristics. Any MNR sampling program (including sediment, surface water, and biota) should take into account the potential presence of such subareas and should be designed to evaluate the efficacy of MNR across them. MDEQ notes that MNR could potentially be applicable to some such subareas of Area 6, but not others.

- The historical data should be reviewed to develop an understanding of spatial and temporal trends, if any, in sediment bed contaminant concentrations. The conclusions from this analysis can be assessed against other lines-of-evidence such as bathymetry, shear stress regime, etc. to identify sediment sampling locations targeted to represent a range of environmental conditions – for instance, the deeper portion of the channel versus the shallows, areas of relatively high and low sediment concentrations/inventory, etc.

- The Sampling Plan should discuss preliminary estimates of the spatial and temporal sampling density needed to evaluate MNR within Area 6 in a statistically robust manner.

- Given the limited sample size (only one sampling event), certain goals of the Sampling Plan such as the range of PCB concentrations in surface water, and PCB concentrations transported into and out of Area 6 cannot be achieved by the proposed sampling plan. These goals can only be achieved by considering the historical surface water data. Therefore, the surface water samples proposed to be collected should be combined with the historical data

to address the afore-mentioned goals of the Sampling Plan, as well as evaluations of long term surface water concentration trends.

- Future differential bathymetry evaluations should be included as an additional line of evidence for evaluating MNR.